

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the present application.

1. (Currently amended) A method for establishing links between Fibre Channel (FC) node devices through a FC fabric, the method comprising:

assigning a common name to a pair of ports, wherein each port in the pair of ports is located on first and second FC node devices, respectively, and the pair of ports includes a source port and a destination port;

storing the common name-to-port assignment within a name server for the FC fabric;

configuring the first FC node device ~~each port in the pair of ports~~ to query the name server to ~~obtain~~establish an identity for the port located on the second FC node device ~~other port in the pair of ports~~ based on the common name, and configuring the second FC node device to query the name server to obtain an identity for the port located on the first FC node device based on the common name; and

configuring the first FC ~~and second node device~~ devices to create a link between the pair~~pairs~~ of ports ~~that have been assigned a common name~~ using the identity for the second FC node device, and configuring the second FC node device to create a link between the pair of ports using the identity for the first FC node device.

2. (Currently amended) The method of claim 1, wherein assigning the common name comprises automatically deriving the common name based on attributes of the pair of each ports~~port~~.

3. (Currently amended) The method of claim 2, wherein automatically deriving the common name comprises:

detecting a port type, a slot number, and a sub-slot number for the pair of each port~~ports~~; and

combining the port type, the slot number and the sub-slot number for the common name.

4. (Currently amended) The method of claim 3, storing the common name-to-port assignment within the name server for the FC fabric ~~further~~ comprising storing the common name within at least a portion of a symbolic name for each port, as defined in the FC protocol, ~~for each port~~.

5. (Currently amended) The method of claim 4, wherein storing the common name-to-port assignment within the name server comprises configuring each port to register the ~~common~~symbolic name as a symbolic name with the name server.

6. (Currently amended) A method for creating links between Fibre Channel (FC) node devices through an ~~a~~ FC fabric, the method, comprising:

assigning a ~~common~~-symbolic name to each a pair of a plurality of FC ports, wherein each FC port in the pair is located on an a separate FC node device, and each symbolic name is a combination of a plurality of attributes of a corresponding FC port;

configuring each FC port in the pair to register its the common-symbolic name assigned to the port as a symbolic port name with a name server for the FC fabric;

configuring each FC port in the pair to query the name server to find an FC identifier of identify another FC the other port in the pair based on the ~~common~~ symbolic name; and

configuring each FC port in the pair to login to the another other port that has the ~~common~~ symbolic name using the FC identifier.

7. (Canceled)

8. (Currently amended) The method of claim 67, wherein the plurality of attributes are selected from the group consisting of a port type, a slot number for each the port, and a sub-slot number for each the port.

9. (Currently amended) The method of claim 8, wherein the plurality of attributes are automatically detected by an operating system for the FC nodenodes devices.

10. (Currently amended) The method of claim 9, wherein assigning the symbolic name comprises storing the symbolic name each of the attributes at a predefined location within a symbolic name field for each port, as defined in the FC protocol.

11. (Currently amended) A computer readable medium, having stored thereon a sequence of instructions which when executed by a processor, cause the processor to perform a method for establishing a link from between a first Fibre Channel (FC) port to and a second FC port through ana FC fabric, the method comprising:

~~assigning a name to the first port;~~

~~storing the name to port assignment within a name server for the FC fabric;~~

~~configuring the first port to query~~ querying a the name server for the FC fabric to obtain establish an FC identity for the second port, based on a match of a the symbolic name of the first FC port and a symbolic name of the second FC port name, wherein the first and second FC ports are located on first and second FC node devices, respectively, and the symbolic names are stored within the name server;
and

~~configuring the first port create~~ creating a the link from the first FC port to with the second FC port using the FC identity for the second FC port.

12. (Currently amended) The computer readable medium of claim 11, wherein ~~assigning the~~ symbolic name stored within the name server to the first port

~~comprises~~ is automatically derived ~~deriving the name~~ based on attributes of the first and second FC ports~~port~~.

13. (Currently amended) The computer readable medium of claim 12, wherein ~~automatically deriving the name comprises detecting the attributes comprise~~ a port-type, a slot number, and a sub-slot number for the first and second FC ports~~port~~.

14. (Currently amended) A computer readable medium having stored thereon a sequence of instructions which when executed by a processor, cause the processor to perform a method for creating links between a first Fibre Channel (FC) port and a second FC port through an FC fabric, the method, comprising:

~~automatically detecting a port type and a PCI address for the first port;~~
~~deriving a symbolic name for the first port based on the port type and the PCI~~
~~address;~~

~~storing the symbolic name within a symbolic name field of the first port;~~
~~registering the port type and the symbolic name with a name server for the fabric;~~

~~querying a~~ the name server for the FC fabric to obtain ~~the symbolic names of~~
~~all other FC ports on the FC fabric that support an upper-level protocol (ULP)~~
~~supported by the first FC port, wherein each symbolic name is derived based on~~
~~port type and PCI address of a corresponding FC port and registered within a~~
~~symbolic name field in a database for the name server by a FC node device having~~
~~the corresponding FC port;~~

comparing each of the symbolic names obtained~~received~~ from the name server with a symbolic name for assigned to the first FC port to find a match; and performing a port login using ~~at the port identifier ID~~ of the second FC port whose symbolic name has the match with~~matches~~ the symbolic name for assigned to the first FC port.

15. (Currently amended) The computer readable medium of claim 14, wherein the upper-level protocol is the Fibre Channel Virtual Interface (FCVI) protocol.

16. (Currently amended) A storage system~~device~~, comprising:

a processor;

a network adapter, coupled to the processor, to connect the storage system to a Fibre Channel (FC) fabric; and

a memory, coupled to the processor, to store~~the memory storing~~ instructions which when executed by the processor cause the processor to perform a method for creating a link between a first FC port and a second FC port through an FC fabric, the method comprising:

~~assigning a name to a first port of the storage device;~~

~~storing the name to port assignment within a name server, for an FC fabric to which the first port is connected;~~

~~causing the first port to query~~querying a the name server for the FC fabric to obtain symbolic names for FC ports in other storage systems on the

FC fabric, wherein each symbolic name is derived based on port type and PCI address of a corresponding FC port and registered within a symbolic name field in a database for the name server by a storage system which has the corresponding FC port;

comparing each of the symbolic names obtained from the name server with a symbolic name for the first FC port to find a match; and

performing a port login using a port identifier of the second FC port whose symbolic name has the match with the symbolic name for the first FC port~~to establish an identity for a second port connected to the FC fabric, based on a match of the name of the first port and a name of the second port; and configuring the first port to create a link with the second port.~~

17. (Currently amended) The storage system computer-readable medium of claim 16, wherein ~~assigning the symbolic names~~name stored in the name server to the first port comprises are automatically derived~~deriving the name~~ based on a plurality of attributes of the first and second FC ports~~port~~.

18-21. (Canceled)

22. (New) A method for creating a link from a first Fibre Channel (FC) node device to a second FC node device on an FC fabric having a name server for the FC fabric, the method comprising:

querying the name server to retrieve a plurality of values for a symbolic name field within a name server database for the name server;

searching the plurality of values received from the name server for a combination of a plurality of attributes of the second FC node device; and

creating the link from the first FC node device using an FC identifier for the second FC node device, wherein the FC identifier is obtained from the name server, and the second FC node device has the combination as a value for a corresponding symbolic name field.

23. (New) The method of claim 22, wherein the plurality of attributes are selected from the group consisting of a port type, a slot number and a sub-slot number for each port in the second FC node device.

24. (New) The method of claim 22, wherein the combination of the plurality of attributes are registered with the name server as a symbolic name by the second FC node device.

25. (New) The method of claim 24, wherein the plurality of attributes are automatically detected and combined for the combination by an operating system for the second FC node device.

26. (New) The method of claim 22, wherein the combination is stored at a predefined location within a symbolic name field for each port, as defined in the FC protocol, in the name server database.